Pre-Dentistry - Science with Chemistry Concentration Program

Associate in Science

Minimum of 61-64 credit hours

Dentists diagnose their patients and treat their problems with teeth and tissues in the mouth, as well as give advice and care instructions to prevent future problems. Most dentists must train in a higher education setting for eight years. However, the oral health care career field includes other positions including dental hygienist, dental assistant and dental lab assistant. All offer job security, flexibility and the prestige of working in the healthcare industry as well as the personal satisfaction of helping others. Following the pre-dentistry degree plan at OCCC, a variation of the chemistry degree program, you will learn all the fundamentals for a career in this continuously growing health profession.

Course Sequence

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<th>Credits</th>
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Course Grouping

Major Courses: (15 credit hours) CHEM 1215 (C); CHEM 2114 (C); CHEM 2122 (C); CHEM 2124 (C)
General Education Courses: (40 credit hours) English: ENGL 1113; ENGL 1213; History: HIST 1483 or HIST 1493; Political Science: POLSC 1113; Chemistry: CHEM 1115 (C); Physics: PHYS 1114; Biological Science: BIO 1124; Humanities: Six credit hours; Social Sciences: PSY 1113; Mathematics: MATH 1513 (C) or MATH 1613 or MATH 1743 or MATH 2013
Life Skills Courses: (1 credit hour) Life Skills: SCL 1001
Support Courses: (5-8 credit hours) One or two Faculty Advisor Approved Support Electives chosen from BIO or PHYS
(C) A grade of "C" or higher must be achieved.

Program Notes

Notes: This program is designed for students planning to continue their education at a four-year college or university. See the front general section for information and requirements about University Parallel/Transfer Programs.

(C) Indicates a grade of "C" or higher must be achieved.

** PHYS 1214 is strongly recommended.
BIO 1124 - GENERAL BIOLOGY I
(Majors)
Prerequisites: ENGL 0203 or adequate placement score or by meeting determined placement measures; MATH 0403 or MATH 1513 or MATH 1533, or both MATH 0403 and High School Chemistry or CHEM 1123. A grade of C or better.
4 Credits This is an introductory course required for all biological science majors and pre-health professions. Students gain knowledge regarding the chemical basis of life, structural characteristics of cells to include a discussion of energetics, metabolism and genetics. Evolution and ecology are also discussed in order to provide an understanding of both the diversity of living organisms and the living world. Students recognize, discuss, and correctly apply fundamental biological principles influencing their personal relationships with other life forms. A discussion of the scientific method, logical (deductive) reasoning, hypothesis testing and some common fallacies and misconceptions that cloud scientific explanations of the natural world are included. Laboratory work, an integral and required part of the course, will enhance the students' understanding of fundamental biological concepts as well as scientific procedures, laboratory technical skills, dissection and statistical analysis.

CHEM 1115 - GENERAL CHEMISTRY I
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures; MATH 1513 or MATH 1533, or both MATH 0403 and High School Chemistry or CHEM 1123. A grade of C or better.
5 Credits This course is designed for science and engineering majors. The course covers nomenclature, atomic and molecular structure, stoichiometry, acid/base and other aqueous reactions, states of matter, phase changes, gas laws, and an introduction to thermochemistry. Laboratory experience is an integral part of the course.

CHEM 1215 - GENERAL CHEMISTRY II
Prerequisites: CHEM 1115 with a grade of "C" or better; MATH 1513 or MATH 1533 with a grade of "C" or better.
5 Credits This course is a continuation of CHEM 1115 with emphasis on thermochemistry, intermolecular forces, properties of solutions, acid/base properties, kinetics, equilibrium, thermodynamics, electrochemistry, and organic chemistry. Laboratory is an integral part of the course.

CHEM 2114 - ORGANIC CHEMISTRY I
Prerequisites: CHEM 1215 with a grade of "C" or better.
4 Credits This course is the first of a two-semester sequence of organic chemistry for science and chemical engineering majors as well as students seeking to enter the fields of medicine, dentistry, pharmacy, and veterinary medicine. Students will master the fundamental concepts of structure, functional groups, and reactions of aliphatic compounds along with selected reaction mechanisms.

CHEM 2122 - ORGANIC CHEMISTRY LABORATORY
Prerequisites: CHEM 2124 with a grade of "C" or better.
2 Credits This laboratory course is intended for science and chemical engineering majors as well as students seeking to enter the fields of medicine, dentistry, pharmacy, and veterinary medicine. Students will master common laboratory techniques used to synthesize, separate, purify, and characterize organic compounds.

CHEM 2124 - ORGANIC CHEMISTRY II
Prerequisites: CHEM 2114 with a grade of "C" or better.
4 Credits This course is the second of a two-semester sequence of organic chemistry for science and chemical engineering majors as well as students seeking to enter the fields of medicine, dentistry, pharmacy, and veterinary medicine. Students will master the concepts of structural theory, reactions, and reaction mechanisms of the principal functional groups of organic compounds which were not included in the first course.

ENGL 1113 - ENGLISH COMPOSITION I
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits The student will write well-developed compositions which demonstrate the principles of unity, coherence, and organization and which contain specific details and vivid language. The students will locate library material and incorporate researched materials into compositions.

ENGL 1123 - ENGLISH COMPOSITION II
Prerequisites: ENGL 1103 or ENGL 1113 taken within the last year, with strong encouragement for immediate continuation.
3 Credits In this advanced writing course, students will create essays that explore and evaluate a variety of issues and perspectives suggested by fiction, poetry, drama, essays, and other types of cultural texts. Students will refine and augment the writing techniques they learned in ENGL 1113 or ENGL 1103 to develop well-reasoned, well-structured arguments in a clear, fluid, and engaging prose style.

FA SUPPORT - FACULTY APPROVED SUPPORT ELECTIVES
Prerequisites:
3 Credits Faculty approved support electives

HIST 1483 - U.S. HISTORY TO THE CIVIL WAR
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits After analyzing events in American history from 1400 to 1870 in such areas as revolution, geographic and social mobility, political reform, government precedents and war, the student will be able to identify patterns of present day mobility, describe governmental operations in his society and help resolve conflict in society based on the students search for change, precedents, and conflict in the American past.

HIST 1493 - U.S. HISTORY SINCE THE CIVIL WAR
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits After analyzing events in American history from 1870 to the present in such areas as political reform, industrialization, urbanization, ethnic acculturation and war, the student will be able to identify meaningful changes in his society, identify equal rights in that society, and help resolve conflict in this society based on the students search for change, equal rights and conflicts in the American past.

HUM - HUMANITIES ELECTIVE
Prerequisites:
3 Credits Humanities elective

MATH 1513 - COLLEGE ALGEBRA FOR BUSINESS, LIFE SCIENCES AND SOCIAL SCIENCES
Prerequisites: MATH 0403 or adequate math placement test score; ENGL 0203, adequate placement score, or by meeting determined placement measures
3 Credits The student will demonstrate an understanding of the general concepts of relation and function and specifically of polynomial, exponential, and logarithmic functions; the ability to solve systems of equations by utilizing matrices and determinants; and the ability to solve practical problems using algebra.

MATH 1613 - TRIGONOMETRY
Prerequisites: Pre or Corequisite: MATH 1513 or MATH 1533 or adequate math placement
test score and ENGL 0203, adequate placement score, or by meeting determined placement measures.
3 Credits The student will evaluate trigonometric functions and their inverses, graph trigonometric functions, prove trigonometric identities, solve trigonometric equations, solve problems involving triangles and indirect measurement, use trigonometric forms of complex numbers, and identify and graph polar curves.

**MATH 1743 - CALCULUS I FOR BUSINESS, LIFE SCIENCES, AND SOCIAL SCIENCES**
Prerequisites: MATH 1513 or adequate math placement test score.
3 Credits This is the first of a two-semester sequence in elementary calculus in which students use the concepts of differential and integral calculus to solve theoretical and applied problems in business, life sciences, and social sciences.

**MATH 2013 - INTRODUCTION TO STATISTICS**
Prerequisites: MATH 0403 or adequate math placement test score; ENGL 0203, adequate placement score, or by meeting determined placement measures.
3 Credits The student will solve problems applying the concepts of random sampling, elementary probability, testing hypotheses, descriptive measures, chi-square, regression and correlation, and analysis of variance.

**PHYS 1114 - COLLEGE PHYSICS I**
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures and MATH 1513 or higher or APPM 1223, within the last two years or by evaluation. § Criteria for evaluation is in division office.
4 Credits Students will demonstrate their understanding of useful concepts of kinematics and dynamics, energy and momentum, waves and sound, fluids and thermodynamics by (1) developing numerical and graphical descriptions of physical phenomena, (2) numerically predicting the results of physical occurrences, and (3) applying laboratory skills to analyze real situations. Numerical computations will utilize algebra and basic trigonometry where appropriate.

**PSY 1113 - INTRODUCTION TO PSYCHOLOGY**
Prerequisites: ENGL 0203, adequate placement score, or by meeting determined placement measures.
3 Credits A survey of the major areas of study in psychology such as motivation, learning, physiology, personality, social psychology, abnormal behavior, perception, memory, cognition/thought, and treatment.

**SCL 1001 - SUCCESS IN COLLEGE AND LIFE**
Prerequisites: ENGL 0106 or adequate reading/writing assessment scores.
1 Credit Students will learn best practices for academic, career, and personal success. Students will discover their individual strengths, interests, and values to create a personalized plan; select and utilize resources that are applicable to their growth and success; and engage as active and responsible members of the academic community. This course should be taken during a student's first semester of college work at Oklahoma City Community College and is a required course in degree plans to satisfy the Life Skills requirement.